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The following procedures must be followed when bleeding up different beamline sections and when returning these sections to operation (refer to Beam Line Layout Drawing):

I.   FRONT-END (PROCEDURE TO BE PERFORMED BY NSLS VACUUM GROUP ONLY)

A. Bleed-Up
1. Notify the Coordinator (Beeper 5824).
2. Refer to Front-End Vacuum Procedures (SLS-07.19-13-1).

B. Return to Operation
1. Notify the Coordinator (Beeper 5824).
2. Refer to Front-End Vacuum Procedures (SLS-07.19-13-1).

II.   SECTION BETWEEN ISOLATION VALVE 1A AND Be WINDOW 1A

A. Bleed-Up
1. Notify the Coordinator (Beeper 5824).
2. Close and seal the Front-End High Vacuum Valve and Valve 1A.
3. Hook up turbo pump to this section and isolate turbo.
4. Coordinator places Yellow Tags on Valve 1A and the Front-End High Vacuum Valve.
5. Slowly bleed-up with boil-off N_2 while Coordinator monitors the Front-End pressure.

B. Return to Operation
1. Bake and pump to $< 2 \times 10^{-9}$ Torr.
2. Notify the Coordinator (Beeper 5824).
3. Prepare for RGA Scan.*
4. Open Valve 1A provided pressure is $< 2 \times 10^{-9}$ Torr downstream of the valve.
5. Perform RGA Scan.*
6. If RGA Scan or pressure reading (if no RGA Scan required) is satisfactory, Coordinator removes Yellow Tags from Valve 1A and the Front-End High Vacuum Valve.
7. Remove any unprotected turbo pump from this section or valve off the turbo pump and place a Tag on the valve. **

III. SECTION BETWEEN Be WINDOW 1A AND HUTCH KAPTON WINDOW, MONOCHROMATOR

A. Bleed-Up
1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve 1A.
3. Coordinator places Yellow Tag on Valve 1A.
4. Slowly bleed-up through Leak Valve #5 while Coordinator monitors pressure between Valve 1A and Be Window 1A.

B. Return to Operation
1. Pump to $< 5 \times 10^{-2}$ Torr.
2. Notify the Coordinator (Beeper 5824).
3. Open Valve 1A if pressure is $< 2 \times 10^{-9}$ Torr downstream of the valve.
4. Coordinator removes Yellow Tag from Valve 1A.

IV.   SECTION BETWEEN Be WINDOW 1A AND VALVE 6A, MONOCHROMATOR

A.   Bleed-Up
1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve 1A.
3. Coordinator places Yellow Tag on Valve 1A.
4. Close Valve 6A.
5. Slowly bleed-up through Leak Valve #5 while Coordinator monitors pressure between Valve 1A and Be Window 1A.

B.   Return to Operation
1. Pump to $< 5 \times 10^{-2}$ Torr.
2. Open Valve 6A.
2. Notify the Coordinator (Beeper 5824).
3. Open Valve 1A if pressure is $< 2 \times 10^{-9}$ Torr downstream of the valve.
4. Coordinator removes Yellow Tag from Valve 1A.

V.   SECTION BETWEEN VALVE 3A AND HUTCH KAPTON WINDOW, BEAMLINE

A.   Bleed-Up
1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve 3A.
3. Coordinator places Yellow Tag on Valve 3A.
4. Slowly bleed-up through Leak Valve #5 while Coordinator monitors pressure in the Monochromator.

B.   Return to Operation
1. Pump to $< 5 \times 10^{-2}$ Torr.
2. Open Valve 6A.
2. Notify the Coordinator (Beeper 5824).
3. Open Valve 3A if pressure is $< 5 \times 10^{-2}$ Torr downstream of the valve.
4. Coordinator removes Yellow Tag from Valve 3A.

VI.   SECTION BETWEEN VALVE 3A AND VALVE 6A, BEAMLINE

A.   Bleed-Up
1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve 3A.
3. Close and seal Valve 6A.
3. Coordinator places Yellow Tag on Valve 3A.
4. Slowly bleed-up through Leak Valve #5 while Coordinator monitors pressure in the Monochromator.

B.   Return to Operation
1. Pump to $< 5 \times 10^{-2}$ Torr.
2. Open Valve 6A.
2. Notify the Coordinator (Beeper 5824).
3. Open Valve 3A if pressure is $< 5 \times 10^{-2}$ Torr downstream of the valve.
4. Coordinator removes Yellow Tag from Valve 3A.

VII.   SECTION BETWEEN VALVE 6A AND HUTCH KAPTON WINDOW, BEAMLINE

A.   Bleed-Up
1. Notify the Coordinator (Beeper 5824).
2. Close and seal Valve 3A.

3. Close and seal Valve 6A.

3. Coordinator places Yellow Tag on Valve 6A.

4. Slowly bleed-up through Leak Valve #7 while Coordinator monitors pressure in the beamline upstream Of Valve 6A.

B. Return to Operation
1. Pump to $< 5 \times 10^{-2}$ Torr.
2. Open Valve 6A.
2. Notify the Coordinator (Beeper 5824).
3. Open Valve 3A if pressure is $< 5 \times 10^{-2}$ Torr downstream of the valve.
4. Coordinator removes Yellow Tag from Valve 6A.

* NSLS POLICY FOR RGA SCANS (24 HOUR NOTICE REQUIRED)

An RGA scan is required before returning to operation if there is a major change of hardware in the vacuum system, i.e. changing of samples, mirrors, windows, monochromator crystals or gratings, manipulators, detectors, etc., **with the following two exceptions:**

1. After UHV sample chambers have been bled up for replacing components, an RGA scan will not be required if the chamber pressure is returned to $< 2 \times 10^{-9}$ Torr and the Front End pressure remains $< 2 \times 10^{-9}$ Torr when vacuum sections upstream of the chamber are opened into the Front End.

2. If any vacuum section upstream of the bled-up section remains at a pressure of $< 9 \times 10^{-10}$ Torr as read using a hot-filament ion gauge, when the entire beamline is opened into the Front End, and the Front End pressure does not increase, no RGA is required.

** NSLS TURBO PUMP POLICY

An unprotected turbo pump is one not separated from the Front End by a beamline valve which automatically closes in the event of a power loss or a pressure increase at the turbo pump. **No unprotected turbo pump can share a contiguous vacuum with the Front End.**

Document Review Frequency	
3	Years

Review signatures on file
with master copy of
controlled document

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